

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY**

**SPRINT SPECTRUM L.P. and  
T-MOBILE NORTHEAST LLC (f/k/a  
OMNIPOINT COMMUNICATIONS, INC.),**

**Plaintiffs,**

**v.**

**THE ZONING BOARD OF ADJUSTMENT  
OF THE BOROUGH OF PARAMUS, NEW  
JERSEY,**

**Defendant.**

Civ. No. 09-04940 (KM) (MAH)

**FINDINGS OF FACT &  
CONCLUSIONS OF LAW**

**KEVIN MCNULTY, U.S.D.J.:**

This case requires the Court to evaluate the decision by the Zoning Board of Adjustment of the Borough of Paramus (“Defendant” or “Board”) to deny the applications of Sprint Spectrum L.P. and T-Mobile Northeast LLC (collectively “Plaintiffs” or “Carriers”) to construct a wireless communications facility. Plaintiffs filed this action for declaratory and injunctive relief against the Board for violations of the Telecommunications Act of 1996 (“TCA”) and the New Jersey Municipal Land Use Law (“MLUL”).

The Carriers have two essential claims. First, they contend that the Board’s denial is an effective prohibition of service in violation of the TCA, 47 U.S.C. § 332(c)(7)(B)(i)(II). The Board, they say, denied an application to fill a significant gap in wireless service despite the lack of any feasible, available, less-intrusive means to fill the coverage gap. That claim is a federal-law cause of action as to which this Court may take independent evidence, in addition to

reviewing the record already compiled. Second, the Carriers contend that the Board's denial was not supported by substantial evidence, under the TCA, 47 U.S.C. § 332(c)(7)(B)(iii), and the MLUL, N.J. Stat. Ann. 40:55D-1 *et seq.* A decision on that second claim is based on this Court's review of the record that was compiled before the Zoning Board.

I am the third judge to whom this case has been assigned. This opinion must be read in conjunction with a prior partially dispositive ruling in the case, the summary judgment opinion of Judge Linares (DE 40), as well as other rulings by Judge Salas. I have built upon their work, and tried not to duplicate it. I broadly agree with those prior rulings, treated them as constituting the law of the case, and proceeded to resolve the issues that remain outstanding.

On April 30, 2013, and May 1, 2013, I held a bench trial to resolve disputed issues. The witnesses for both sides were offered as experts. By stipulation I accepted their reports or affidavits in lieu of direct testimony. In court, the opposing party was permitted to conduct cross-examination, and redirect examination was permitted as appropriate.<sup>1</sup>

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<sup>1</sup> Certain record items, cited repeatedly, they will be abbreviated as follows:  
DE \_ = Numbered docket entry in this action.

Pl. SMF = Plaintiffs' Statement of Material Facts (DE 63).

Def. SMF = Defendant's Statement of Material Facts (DE 60).

Conroy Direct = Direct Testimony of Richard A. Conroy, Jr.  
(DE 126-1, marked as Ex. C-1)).

Karlebach Direct = Direct Testimony of David Karlebach  
(DE 126-2, marked as Ex. C-2).

Eisenstein Direct = Direct Testimony of Dr. Bruce Eisenstein  
(DE 124, marked as Ex. C-3).

1T = Stipulated reconstructed transcript of hearing, 4/30/2013 [morning session]  
(DE 160-1) (*see note below*).

"[I]n all actions tried upon the facts without a jury or with an advisory jury, the court shall find the facts specifically and state separately its conclusions of law thereon...." Fed. R. Civ. P. 52(a). This constitutes the Court's findings of fact and conclusions of law. I find that the Board's denial effectively prohibits wireless service, that it was not supported by substantial evidence, and that it therefore violates the TCA and MLUL.

**I. FINDINGS OF FACT**

**A. Parties and Jurisdiction**

1. Plaintiff Sprint Spectrum L.P. is a Delaware limited partnership with a principal place of business at 6200 Sprint Parkway, Overland Park, Kansas. (Complaint, DE 1, ¶ 10).

2. Plaintiff T-Mobile Northeast LLC is a Delaware limited liability company and is the successor-in-interest to Omnipoint Communications, Inc. Both T-Mobile Northeast LLC and Omnipoint Communications, Inc., are wholly-owned subsidiaries of T-Mobile, USA, Inc., a Delaware corporation with

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2T = Transcript of hearing, 4/30/2013 [afternoon session].

3T = Transcript of hearing, 5/1/2013.

Linares Opinion = Opinion dated November 22, 2010, by District Judge Jose L. Linares (DE 40).

Salas Opinion = Opinion dated May 21, 2012, by District Judge Esther Salas (DE 85).

*Note regarding the reconstructed transcript cited as 1T:* As to one session (the morning of April 30, 2013), the transcription process failed. As a result, there was no transcript of most of the live examination of Richard Conroy, an expert witness for the plaintiffs. At the joint suggestion of the parties, and taking Rule 10(c), Fed. R. App. P., as my guide, I authorized counsel to reconstruct the transcript. They have done so, cooperatively and scrupulously. I apologize on behalf of the court, thank them, and commend their professionalism. Because the parties have stipulated to the content of the reconstructed testimony, there are no disputes about its accuracy for me to resolve. (DE 160, 160-1).

its principal place of business in Bellevue, Washington. (Complaint ¶ 11).

3. Defendant Zoning Board of Adjustment of the Borough of Paramus, New Jersey, is a duly authorized zoning board of adjustment pursuant to N.J.S.A. 40:55D-69. As such, it is delegated the authority to, among other things, grant site plan approval and variance relief for wireless telecommunications facilities in Paramus. (Answer, DE 5, ¶ 12).

4. This Court has jurisdiction pursuant to 28 U.S.C. § 1331, which provides that “the district courts shall have original jurisdiction of all civil actions arising under the Constitution, laws, or treaties of the United States.”

5. This Court has supplemental jurisdiction pursuant to 28 U.S.C. § 1337 over Plaintiffs’ state law claim, which forms part of the same case or controversy as Plaintiffs’ federal claims.

### **B. Zoning Board Proceedings**

6. Plaintiffs, the Carriers, are the proposed lessees of two properties located within the Borough of Paramus, New Jersey. One, the “Ambulance Corps” site, is located at 295 East Midland Avenue. The other, the “Church of the Nazarene” site, is located at 285 East Midland Avenue. Plaintiffs have sought approval to construct a wireless telecommunications facility at either of those sites in order to fill significant gaps in their wireless coverage. (Def. SMF, DE 60, ¶ 38).

7. In December 2004, Sprint filed its application for zoning approval to construct a 125-foot faux-tree wireless communications facility, known as a “monopole,” at the Ambulance Corps site. Paramus subsequently enacted a

new telecommunications ordinance. The ordinance, among other things, specifically prohibited cellular monopoles (defined as “[a]n antenna structure consisting of a single pole”) in commercial and residential zones. (Karlebach Dep. at 8:1-4, 42:16-21). T-Mobile’s predecessor in interest, Omnipoint Communications, was added to that application in August 2008. The Ambulance Corps site is located in an R-100 residential zone. It is bordered by a Jewish Community Center, the Church of the Nazarene, and four residences. (Linares Opinion, DE 40, at 2).

8. In November 2007, to provide another option, Sprint and T-Mobile’s predecessor in interest, Omnipoint Communications, filed a joint application for zoning variances and approval to construct a 120-foot faux-tree wireless communications facility at the Church of the Nazarene site. That site, too, is located in an R-100 residential zone. It is bordered by the Paramus Volunteer Ambulance Corps, a commercial strip, and two residences. (Linares Opinion at 2-3).

9. Each application requested variances pursuant to N.J.S.A. 40:55D-70(d) with respect to (a) permitted use, because telecommunications facilities are specifically prohibited in residential zones, and (b) maximum building height, because 32 feet is the maximum height permitted. Both applications further requested variances pursuant N.J.S.A. 40:55D-70(c) with respect to (a) lighting, (b) minimum front/rear setback, (c) minimum setback from a residential zone, and (d) minimum setback from property line for an equipment building. (Linares Opinion at 3).

10. Between May 26, 2005, and June 25, 2009, the Board held seventeen public hearings on the Carriers' applications. At these meetings, the Board heard testimony from counsel and various experts. It heard questions and concerns raised by the public. (Linares Opinion at 3-4). One of the issues raised was whether there was a feasible alternative to the monopole.

11. In May 2006, Rhoan Gordon, a radio frequency engineer and the Carriers' expert before the Zoning Board, was asked whether affixing antennae to multiple shorter structures, such as lamp poles, would be a feasible alternative to the requested monopole. He responded:

Then you need a dozen of them or 15 of them to cover the entire thing at 25 feet . . . That's equivalent to the lamp pole, maybe 30 feet. You need a dozen to cover this gap. . . . That is not a feasible design even if we were to hang them on light bulbs [sic], you need a huge box with each antennae system where would you put it on the ground, hang it off the light pole and you have this huge cabinet or box of some sort hanging on your light pole and there would be a lot of them, in order to provide the coverage for all of the gap, or a large portion of the gap. . . . You need additional height for this facility.

(Linares Opinion at 6; Def. SMF ¶ 39).

12. Over two years later, in July 2008, a member of the public inquired as to whether a Distributed Antenna System ("DAS") had been considered as an alternative to the proposed monopole. DAS is a means of providing wireless coverage without the use of tall monopoles. A monopole concentrates all wireless antennas onto a single tower, as the name suggests; a DAS, however, "distributes" those antennas across utility poles and other existing structures throughout the coverage area. (Linares Opinion at 6). The expert retained by

the Board, Ross Sorci, a radio frequency engineer with twenty-nine years of relevant experience analyzing coverage and propagation issues, answered that, for a DAS, “[y]ou’d have to run the – you’d have to have numerous antennas running up and down the road to get the same service that we could from a single structure.” Mr. Sorci further testified that “DAS systems typically aren’t used in this type of application, they are more of a, you know, spot solution, if you will, a parking garage, an auditorium, things of that nature.” According to Mr. Sorci, a DAS is “generally not very applicable to covering a large area like what we’re talking about here.” (Linares Opinion at 6; Pl. SMF ¶¶ 11.c, 14.a).

13. In November 2008, Paramus hired a public advocate, Patrick Papalia, who retained and offered David Maxson as an expert in “wireless consulting and communications.” Mr. Maxson described himself as a “municipal wireless consultant” with “experience in evaluating, observing and providing consulting services with regard to DAS systems and other types of wireless service systems.” Mr. Maxson testified that he does not hold a degree in engineering and that he has “no formal training with respect to the placement, construction or modification of personal wireless facilities.” He testified that he is not a licensed professional engineer in New Jersey, has no educational experience in land use planning, is not a certified urban planner, is not a certified municipal engineer in New Jersey, and has taken just one non-graded course via CD-ROM on cellular CDMA technology. He testified that he has, however, served as a consultant to municipalities for over 20 years and has advised wireless carriers regarding both DAS and monopole technology,

and that he is a “senior member of the Institute of Electrical and Electronics Engineers” and a “certified engineer with the Society of Broadcast Engineers.” The Board permitted Mr. Maxson to testify over the Carriers’ objection. (Linares Opinion at 6-7; Pl. SMF ¶¶ 11.d, 11.e).

14. Before testifying at the Board hearing, Mr. Maxson prepared a report in order to “raise questions that have not been addressed by the respective parties in the application proceedings,” including DAS. Mr. Maxson wrote that “[i]t must be understood that my review is incomplete without seeing the other materials that were referred to in the transcripts.” He further wrote that a DAS is an “alternative that deserves careful consideration” depending on “[w]hat local zoning regulation,” or “other local or state regulatory controls,” if any, “appl[y] to the use of the utility distribution infrastructure in Paramus” because “[t]hese are important questions [that] speak directly to the availability of the utility distribution infrastructure as an alternative to the proposed tower facility.” (Pl. SMF ¶ 14.c).

15. Mr. Maxson testified that he had “enough information” to “come up with an alternate approach. . . . A distributed antenna system.” Mr. Maxson testified that he had “review[ed] the lay of the land” by looking “on Google,” where “you can see that the streets are well populated with utility poles and the density of development is pretty substantial.” He also “did some looking into the various addresses that were listed on the transcripts just to view Web sites, perhaps, see if I could see photographs of the buildings on these different parcels, for instance, a church parcel.” And he “toured the region” the

afternoon of the zoning board hearing. He did not review the drive test data that was performed by the Carriers or the coverage maps produced before the Board, did not conduct any drive tests in the area, and did not “even drive through the area” until the afternoon of the hearing, and that he did not conduct any inspection of the structural integrity of utility poles in the area to determine whether they would be structurally suitable to hold the antennas and the wires and the cabinets. (Pl. SMF ¶¶ 14.d, 14.e).

16. Mr. Maxson testified that that the streets of Paramus are “well populated with utility poles and the density of development is pretty substantial.” He continued:

So the simple observation from someone who has seen numerous DAS facilities, I’ve done coverage analysis of DAS antenna nodes, both on computer and in the field, is that as long as you have utility poles going through the neighborhoods, you have an opportunity to provide a coverage footprint wherever you need it. And, in fact, the testimony of Mr. Gordon early in the process was that it would take about 12, perhaps 15, 30-foot high antennas to fill what they call the gap.

(Linares Opinion at 7).

17. Mr. Maxson agreed with Mr. Gordon that “with a DAS architecture using lower height antennas, you’d have to have numerous antennas up and down the road to get the same service that we could get from a single structure.” According to Mr. Maxson, “the use of numerous antennas on utility poles is a requirement for a DAS solution.” (Linares Opinion at 7-8).

18. In response to a question about how the Carriers would deal with an extended outage that could severely effect DAS service, Mr. Maxson testified

that the Carriers could solve the problem if they “bring a small Honda generator – I say Honda because they’re popular because they’re fairly small-packaged – set it on the street, chain it to the utility pole and plug it in for the duration of the power outage.” (Pl. SMF ¶ 14.g). Mr. Maxson also testified that a properly-designed DAS could locate an emergency caller within 100 feet and that the DAS cables are “quite rugged.” (Def. SMF ¶¶ 55, 58).

19. Plaintiffs’ expert, Glenn Pierson, a radio frequency engineer with a bachelor’s degree in electrical engineering and twenty years of network design experience, testified that he has “background, training or experience with respect to DAS systems or distributed antenna networks.” He has “designed a DAS network,” and has worked on the networks operating inside the U.S. Capitol building and the Continental Arena. (Linares Opinion at 8; Pl. SMF ¶ 11.b). Mr. Pierson reviewed Maxson’s report and testimony and concluded that “in my engineering opinion, [a DAS is] not a viable alternative in this situation.” (Pl. SMF ¶ 14.h).

20. Mr. Pierson testified as to the reliability of the DAS. Because DAS nodes are serially connected, if “you have a break, a tree falls down, ice storm, car hits a pole, takes it down, if it breaks the link, everything past there is gone. So, if you break a link, you could lose all of them.” He also testified that while “standard cell sites” have battery backups, he was not aware of any DAS nodes with battery backup. (Linares Opinion at 8).

21. Mr. Pierson testified that in a DAS network, the distribution of the signal means that triangulation of a user’s location is only accurate to a

“thousand foot radius.” That implies, he testified, that first responders to an emergency “might be looking an awful long time” for the source of a user’s signal. (Linares Opinion at 8).

22. Mr. Pierson testified as to various maintenance and worker safety concerns associated with the DAS, particularly noting the potential for electromagnetic radiation exposure: “[I]f somebody has to work on that pole, they’re not allowed to be within 3 feet of that pole and still be within the workers Level 4 of the FCC required maximum permissible exposure.” That means that if “someone is going to go and work on one of these poles, you got to turn the node off.” To complete maintenance on the DAS itself, he explained, “you have to have a DAS provider do this. They have to be utility. The [Carrier is] not allowed to be on the pole. So, now you have a third party now to maintain it which may produce priority issues, delays in trying to get something up and running, depending how many carriers, how many systems they have.” (Linares Opinion at 8; Pl. SMF ¶ 14.i).

23. Mr. Pierson testified that DAS coverage requires additional “hand-offs.” He explained that with a DAS, “[y]our coverage is very small. You can zip in and zip out, very quickly. If the system can’t react in time to make that hand off, you’re going to drop it. The less time you go along, turn a corner, around a building, go into a clump of trees, it’s gone like that because the antennas are so low. It makes it very difficult.” (Pl. SMF ¶ 14.j).

24. Mr. Pierson testified that “capacity is not necessarily an issue with DAS. You can add channels to it.” However, Mr. Pierson testified that the DAS

is more difficult to optimize for use by multiple carriers than the monopole design, because of its “omni antenna” architecture. Mr. Pierson also testified as to interference issues associated with the DAS, due to the close proximity of different carriers’ collocated antennae. For example, Mr. Pierson testified that with a monopole, there can be a “10 foot separation between all [carriers]. So, so that we minimize or eliminate any possibility of between the carriers. . . . In the DAS . . . [t]here are certain boxes where sometimes they put three or four boxes, we need three or four boxes. You can then split them up and put them on different poles but then you’re taking four or five poles that are up just to create one essential node for all carriers. So, that’s a balance with how many poles are you really going to use?” (Linares Opinion at 8-9; Pl. SMF ¶ 14.k).

25. Mr. Pierson further testified as to various technical problems associated with collocating multiple carriers on a single DAS node due to power and frequency constraints. He explained:

Again, it’s a power budget. It’s a frequency budget. One box can’t do it all. Okay. Because, you’ve got, Verizon has four frequency bands including the new 700. They have a lot of channels. If you try to stuff that into one box, you’re not going to have a lot. And, I don’t think there’s – I haven’t found one box that’s going to cover, simultaneously, all the frequency bands.” Additionally, “you only have so much room for amplifiers in there. And, if you start putting more and more amplifiers in there and then you got to go back to the whole EMF issue and find out if you’re still in compliance. Because, you might have 80 watts now, on a telephone pole, at 18 feet, 25 feet from, from a second story window, looking straight into it. So, that all has to be figured out. You may have to distribute them over multiple poles to do that which means there could be five or six poles in a row that all have equipment on it. And, then you have to, if you’re going to address battery backup, et cetera. . . . So, you’re looking at 3 to 4 feet on the pole you’re taking up. And, it starts below the lines. . . . Then, if you look at battery backup for a couple boxes, you’re looking at 3 feet a piece.

By the time you start stringing this down the pole, it has to be on one side because the pole has to be climbable, as per the National Electrical Safety Code Regs. You could only put them on one side. You can't wrap them.

(Linares Opinion at 9; Pl. SMF ¶ 14.m).

26. Mr. Pierson further testified that, to implement a DAS in Paramus, “you’re going to have one, at least one [node], in front of every five houses, one in front of every fifth house.” (Linares Opinion at 9; Pl. SMF ¶ 14.n). He concluded, “I don’t think [DAS is] a good solution for an area such as this in trying to get all the multiple providers and get something that’s reliable.” (Linares Opinion at 9).

27. On August 27, 2009, the Board issued a decision denying both of Plaintiffs’ applications. The Board found that “the substantial height of the proposed monopole and its placement within a residential neighborhood would have a detrimental visual effect on the surrounding properties,” that the Carriers “failed to investigate other less intrusive ways of providing coverage” and “did not put forth a good faith effort to explore and investigate alternative technology to provide coverage.” The Board concluded that “the requested variances would substantially impair the intent and purpose of the Paramus Zone Plan and Zoning Ordinance, as both proposed locations have been specifically designated by the Borough for residential use. The proposed use is prohibited.” The Board denied Plaintiffs’ applications because “Applicants have failed to meet their burden of showing that the benefits of the proposed improvements would substantially outweigh any possible detriment. The Board

further finds that the Applicants have failed to demonstrate how the purposes of the MLUL would be advanced by this Application.” (Linares Opinion at 9-10).

**C. This Action**

28. Plaintiffs filed this lawsuit and sought summary judgment. On November 22, 2010, Judge Linares issued an opinion that granted in part and denied in part their motion. (Linares Opinion, DE 40).

29. With respect to Plaintiffs’ claim that the Board’s denial constitutes an effective prohibition of wireless service, in violation of 47 U.S.C. § 332(c)(7)(B)(i)(II), Judge Linares found “that a significant gap in Plaintiffs’ wireless coverage exists within the area presented to the Board by Plaintiffs’ experts”; “that either of Plaintiffs’ proposed [monopole] facilities would adequately fill the coverage gap”; and “that Plaintiffs adequately considered alternative sites before arriving at the proposed sites.” Judge Linares denied summary judgment, however, because he concluded that “genuine issues of material fact exist as to the feasibility of the DAS as a less intrusive alternative to Plaintiffs’ proposed monopole.” Judge Linares wrote:

While the testimony of the experts does shed light on the technical details associated with the DAS, it does not conclusively resolve the question of the feasibility of implementing DAS here, as the testimony regarding its relative reliability, safety, and other design considerations is conflicting, and the credibility of the witnesses as experts is in issue. . . . Thus, based on the evidence before the Court, the question of whether the DAS is a feasible, less intrusive alternative to the proposed monopole presents genuine issues of material fact.

(Linares Opinion at 21).

30. With respect to Plaintiffs' claim that the Board's denial is not supported by substantial evidence, in violation of 47 U.S.C. § 332(c)(7)(B)(iii), and is arbitrary and capricious, in violation of the New Jersey MLUL, N.J.S.A. 40:55D-1, *et seq.*, Judge Linares found that "the Board's decision provides only 'generalized' concerns regarding aesthetics, which are not supported by substantial evidence." He also ruled that "there is no evidence in the record that the tower posed a realistic threat of collapse, and even if such a collapse were to occur, there is no evidence that it would fall onto or near residents' homes," and that "[t]he Board's concerns regarding 'ice accumulation' are equally unfounded." However, Judge Linares denied summary judgment because he concluded that "the determination of whether the Board's findings here were supported by substantial evidence under § 332(c)(7)(B)(iii) and New Jersey law depends on the resolution of the same factual issues upon which the § 332(c)(7)(B)(i)(II) analysis depends," specifically "whether the DAS presented a feasible alternative to the monopole proposed by Plaintiffs." Importantly, Judge Linares ruled that "if the DAS were not a feasible alternative to the monopole, a failure to 'explore and investigate' it as an alternative, less intrusive means of providing coverage would not constitute substantial evidence upon which the Board could have based its decision." (Linares Opinion at 25-28).

31. Implementing Judge Linares's decision, then-Magistrate Judge Esther Salas permitted, for purposes of comparison, discovery "related to the implementation of DAS either in Paramus or by Sprint or T-Mobile at one other

site located within the jurisdiction of the Third Circuit.” The Carriers were able to identify two relevant sites within the Third Circuit, of which at least one used an outdoor DAS to provide wireless service. The Board elected to pursue discovery into T-Mobile’s use of a DAS in Newtown Square, Pennsylvania. (Pl. SMF ¶¶ 15.b, 15.c).

32. On July 20, 2011, the case was reassigned from Judge Linares to Judge Salas, who had recently been appointed a District Judge. Pursuant to an October 7, 2011 scheduling order, the parties submitted cross-motions for summary judgment. Judge Salas denied all motions in an opinion issued on May 21, 2012. (Salas Opinion, DE 85).

33. With respect to Plaintiffs’ claim that the Board’s denial constitutes an effective prohibition of wireless service, in violation of 47 U.S.C. § 332(c)(7)(B)(i)(II), Judge Salas adhered to Judge Linares’s earlier rulings (a) “that a significant gap in coverage exists and either of Plaintiffs’ proposed facilities (a monopole at either site) would fill the coverage gap” and (b) “that Plaintiffs adequately considered alternative sites for the monopole.” Thus she considered only the remaining “narrow issue” of “whether Plaintiffs adequately considered technological alternatives to the monopole, i.e. the feasibility of a DAS as a less intrusive alternative.” Judge Salas denied summary judgment because “the reliability and intrusiveness of a DAS pose questions of fact not resolvable by summary judgment.” (Salas Opinion at 4-5).

34. With respect to Plaintiffs’ claim that the Board’s denial is not supported by substantial evidence, in violation of 47 U.S.C. § 332(c)(7)(B)(iii),

and is arbitrary and capricious, in violation of the New Jersey Municipal Land Use Law, N.J.S.A. 40:55D-1, *et seq.*, Judge Salas recognized that “Judge Linares previously reviewed the record presented to the Board and found an issue of fact existed.” She denied summary judgment to the Plaintiffs because she decided to “not disturb Judge Linares’s ruling.” (Salas Opinion at 6).

35. Judge Salas also denied the Board’s claim that granting the variance sought by Plaintiffs would be an impermissible “arrogation” of the legislature’s power. Judge Salas ruled that, because the Board did not rely on “arrogation as a reason for its denial of the variance applications,” it had waived the argument. (Salas Opinion at 7).

36. On August 1, 2012, the case was reassigned to me. (DE 92).

37. On September 12, 2012, Magistrate Judge Waldor issued an Order setting forth a schedule for expert discovery. Plaintiffs offered reports from Richard A. Conroy, Jr., and David Karlebach. The Board offered a report from Bruce A. Eisenstein. Depositions of Conroy and Eisenstein took place on December 5, 2012. The deposition of David Karlebach took place on December 17, 2012.

38. On April 30, 2013, I commenced a two day bench trial limited to the issue of whether, for filling the gap in wireless service, a DAS is a feasible, less intrusive alternative to the proposed monopole.

#### **D. Findings Based on Trial Testimony and Exhibits**

39. The bench trial consisted of testimony from three expert witnesses. As to the technological feasibility of a DAS, the trial amounted to a faceoff

between Plaintiffs' expert, Richard A. Conroy, Jr., and Defendant's expert, Dr. Bruce A. Eisenstein. Plaintiffs also offered the testimony of David Karlebach, an expert who testified primarily as to planning and aesthetic matters. By agreement, each witness's direct testimony was submitted in written form, and at trial, each witness acknowledged his written statement as his direct testimony. Opposing counsel were then permitted to cross-examine, and live redirect examination was permitted as appropriate.

a. Feasibility of a DAS

40. Mr. Conroy gave an expert opinion as to whether a DAS network would offer a level of service comparable to that of the proposed macrocell system based on a monopole. On that issue he considered capacity, availability and reliability in the coverage gap area. He acknowledged that, setting aside some new material about the installation of solar panels on utility poles, he reached a similar opinion, based on similar facts, to that of Glen Pierson in the zoning board hearings. Conroy is well-credentialed and experienced in the design of monopole and DAS networks. (E.g., Conroy Direct at ¶¶ 1-20; Conroy Cross, 1T at 2-3).

41. Mr. Conroy established to the Court's satisfaction that macrocell architecture is the industry standard method for providing outdoor wireless coverage. It can be deployed and maintained by wireless carriers, such as Sprint and T-Mobile. (Conroy Direct ¶ 21; Conroy Cross, 1T at 3).

42. Macrocell architecture provides broad and robust wireless coverage. With antennas mounted at levels higher than surrounding trees and

buildings, a macrocell is able to project a radio frequency signal that permeates the service area and provides generally reliable outdoor and in-building coverage. A standard macrocell facility offers secure and structurally sound equipment and antenna infrastructure. It permits diverse routing of backhaul, battery backup, and generator operation during long term power outages. (Conroy Direct ¶ 22).<sup>2</sup>

43. A DAS network constitutes a distinct network architecture, using different technology. It does not, like a macrocell tower, communicate directly and wirelessly with the cell phones from a relatively remote location. A DAS is in effect a partly wired, partly wireless network, with the wireless component confined to the last 600 to 900 feet. (Conroy Direct ¶ 24).

44. A DAS, as a hybrid wired/wireless network, thus requires a mesh of coaxial cable, twisted pair wires, and fiber-optic cables to connect all of the various end points or “nodes.” Building this network requires the stringing of cables or trenching to bury wired infrastructure. (Conroy Direct ¶ 24).

45. In a DAS network, the radio signal is converted to an optical signal, which is distributed to multiple antenna locations, or nodes, by fiber optic cable. (Conroy Direct ¶ 23). Each remote node requires equipment to

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<sup>2</sup> I did not find the testimony to be conclusive one way or the other on an additional issue: the merits of a monopole or DAS system for triangulation of a user’s position. Federal law imposes standards for locating E-911 (emergency or 911) callers. (Conroy Direct ¶ 36). Theoretically, three monopoles may offer triangulation or location capability. Likewise three DAS nodes. (Eisenstein Direct ¶¶ 28-38). Conroy enumerated various confounding factors for triangulation using a DAS network. (Conroy Direct ¶¶ 38-40). Conroy could not say, however, at what level of accuracy this proposed monopole, in relation to nearby monopoles, would triangulate callers’ locations. (And all that one monopole can do alone is locate the signal within a 120-degree “pie slice” sector.) (Conroy Cross, 1T at 3-4). Much of this issue is mooted when handsets are equipped with GPS. (Conroy Cross, 1T at 9).

convert the optical signal back to a radio signal, an amplifier to amplify the radio signal, and an antenna. Each node must be mounted on some structure and the antenna must be elevated. (Conroy Direct ¶ 24).

46. A DAS system is most typically used indoors—for example, in shopping malls, large office buildings, or conference centers—where traditional macrocells are unable to provide reliable coverage. (Conroy Direct ¶ 25). It is commonly a spot solution, not a means of covering a large outdoor area. (Eisenstein Cross, 3T at 32-34).

47. Mr. Conroy testified convincingly that a DAS system has inherent limitations as to both coverage and reliability. While it is possible to implement a DAS outdoors, those inherent technical and operational limitations generally prevent it from being a feasible alternative to traditional macrocells. (Conroy Direct ¶ 25).

48. A DAS node located directly in front of a home in Paramus would provide “in-building” coverage to that home and approximately five others. There was disagreement as to the necessary number of nodes. It is essentially clear, however, that to fill the coverage gap in Paramus, a fairly dense multi-node DAS network would be required. (Conroy Direct ¶ 30; Conroy Cross, 1T at 7; Eisenstein Direct ¶¶ 51-52, 54).<sup>3</sup> The experts seemed to agree that a DAS

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<sup>3</sup> Part of the discrepancy between the experts as to the required number of nodes might have involved a definitional issue. Conroy apparently envisioned a DAS system with multiple nodes that were simulcasting—reinforcing each other—on a single frequency. (Eisenstein Redirect, 3T at 39-41). Eisenstein testified that the necessity, or not, of simulcast nodes would have to be determined by on-the-spot testing in connection with the installation process. He seemingly conceived of simulcasting units collectively as a single node. (*Id.* at 41-42).

would require hand-offs from coverage area to coverage area, because each node's coverage area is small.

49. A significant portion of the coverage gap area in Paramus consists of residential streets with dense mature trees over eighty feet tall. The utility poles on which DAS nodes would be installed are thus at risk of damage from falling trees and power outages due to storms. (Conroy Direct ¶ 31). A macro site uses a structurally sound equipment and antenna infrastructure that is relatively resistant to weather and other damage. A macro installation, too, may rely on utility poles for electrical power and "backhaul," *i.e.*, the transmission of the signal from the antenna back to the mobile switching center.

50. Both macrocell and DAS systems require backhaul, usually *via* fiber optic cable, which may be strung on utility poles or, where poles are lacking, buried in trenches. But a macro system will typically permit diverse routing of backhaul. Thus, it can permit the signal to be rerouted in response to, for example, the downing of a utility pole (although certain disruptions to backhaul, for example those occurring very near the monopole itself, can affect the system as a whole). DAS systems typically are not designed with diverse routing of backhaul, because the buildup would be impractical and expensive. And absent such diverse routing, a single utility pole failure could bring down a DAS system. (Conroy Cross, 1T at 4-5).

51. Either a monopole or a DAS system will of course be affected by a power failure. Either can use battery back-up, but in the case of the DAS each node must have its own. To ensure six to eight hours of backup, each node

would have to be accessorized with one or two battery units, each weighing approximately 300 pounds and measuring 3' x 2' x 2'. A monopole may more practically operate on emergency electricity generators during long-term power outages. (Conroy Direct ¶¶ 31-32; Conroy Cross, 1T at 4; *see also* 2T at 6-8).

52. Dr. Eisenstein testified as an expert on behalf of the Defendant. Dr. Eisenstein, too, was well qualified as an expert. He is the Arthur J. Rowland Professor of electrical engineering at Drexel University. Although he has not designed a cellular network, he has dealt with advanced network design in his academic work. He has testified in 300 hearings, although the subject matter of the hearings was not broken down in categories. He has also consulted with some 70 municipalities on cellular network matters. (Eisenstein Direct ¶¶ 4-7; Eisenstein Cross, 2T at 80).

53. I was not persuaded by Dr. Eisenstein's rebuttal of Mr. Conroy's opinion that a DAS is less reliable than a monopole. Eisenstein testified, for example, that monopole systems and DAS systems both generally run backhaul along utility poles and thus would be equally subject to the danger of falling trees. (Eisenstein Direct ¶¶ 39-41). Evidence accepted by the Court, however, renders that comparison facile, because monopole systems may minimize this danger through diverse routing of backhaul.

54. On that issue, Dr. Eisenstein hypothesized that "qualified engineers" could design a DAS system with diverse routing of backhaul, perhaps using a "star" configuration, a technique taught "in our sophomore courses in network theory." Asked if he knew of any such existing system, he

replied “[n]ot directly.” In all caution, he conceded that, if designed, such a system might or might not be practical in the real world. (Eisenstein Cross, 2T at 92-93). That was not sufficient to convince me that a DAS system would be as reliable as a monopole system in terms of backhaul.

55. The evidence was not clear as to the feasibility of emergency backup of backhaul for a macro system *via* microwave transmission. Conroy testified that a macro cell system could, but a DAS system could not, use microwave transmission as an emergency backup for backhaul. (2T at 5-7). Dr. Eisenstein expressed doubts about the practicality of such a backup system, and made the valid point that neither he nor Conroy had identified any real-world example of it. (Eisenstein Cross, 2T at 95). I accept Dr. Eisenstein’s objection, and I do not rely on this evidence.

56. Dr. Eisenstein offered little to rebut the proposition that a macro cell site could use emergency power generation to withstand a power outage. He did not seem to dispute the point as a matter of engineering. He referred generally to the scarcity of power generators during Hurricane Sandy. (Eisenstein Cross, 2T at 95). That objection, apparently based on news reports, contained no specific information about whether Plaintiffs have the capability to mobilize generators in an emergency.

57. Dr. Eisenstein suggested that a DAS system could withstand a power outage by means of battery back-up at the nodes. Again, this is not untrue, but it is perhaps oversimplified. Dr. Eisenstein offered generally that he could think of four ways to design a reliable DAS backup, but admitted he

knew of no existing DAS system that employed them. (Eisenstein Cross, 2T at 94). He opined, however, that “even losing one or two nodes might not [a]ffect coverage because overlapping coverage from other nodes could pick up the slack.” (Eisenstein Direct ¶44). Again, this statement was not backed by concrete facts. The possibility that other nodes might pick up the slack under some circumstances is too unspecific to be persuasive.<sup>4</sup>

58. As noted above, a DAS network requires amplifiers and antennas (as well as battery backup enclosures, if installed) at each of its many nodes. Significant doubts, unresolved by Defendant’s evidence, remain as to whether there is adequate space for such equipment on the utility poles available in the coverage gap area. (Conroy Direct ¶ 53-54; Conroy Cross, 1T at 12).

59. One side of each pole must always remain climbable. Moreover, PSE&G is currently implementing a solar energy project, Solar4All, through which it is installing over 200,000 solar panel units on poles throughout its service territory, which includes all of Paramus and the service gap area. A DAS node cannot practically be deployed on a utility pole that has a solar panel unit. (Conroy Direct ¶ 53-54; Conroy Cross, 1T at 12).

60. Multiple carriers would generally require multiple nodes on a pole. Although sharing of, *e.g.*, amplifiers or antennas is possible, on modern systems it would be impractical, or at least would limit service. (Conroy Cross,

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<sup>4</sup> This testimony may be somewhat in tension with Dr. Eisenstein’s testimony elsewhere that there should be as little overlap as possible in the coverage of nodes. (E.g., Eisenstein Cross, 2T at 27). Units that were simulcasting, on the other hand, might be placed more closely, and would not mutually interfere. (Eisenstein Redirect, 2T at 39). I do not rely on my own intuitions as to this technical issue, which was not explored by the qualified experts.

1T at 13-14).

61. Neither Conroy nor Eisenstein conducted any inventory of available utility pole space. Neither could establish definitively whether there is sufficient pole space available to build a DAS system.<sup>5</sup>

62. Monopoles are much more flexible, although their space for multiple carriers is not unlimited. Five carriers can generally collocate on a monopole like the one proposed, but its height must ordinarily be extended approximately ten feet for each additional carrier. Depending on the tree line, the carrier at the lowest location might experience coverage problems. (Conroy Cross, 1T at 14).

63. Dr. Eisenstein testified in general, and to the Court it seems reasonable, that a DAS system would be more suitable for some environments than for others. For example, it could be tailored to work around obstructions in the terrain, and might work better in a small, densely populated area than in a large, rural one. (Eisenstein Cross, 2T at 97-98). In 2012, Dr. Eisenstein testified against the implementation of a DAS in the Township of Harding, New Jersey. There, Dr. Eisenstein testified that the areas in which a DAS “works okay” are “confined and narrow areas.” He stated that that where you “need 50,

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<sup>5</sup> Conroy expressed a number of other miscellaneous concerns about the availability of utility poles. Under the National Electrical Safety Code (“NESC”), for example, boxes could be mounted only at a limited range of heights. Some of the affected neighborhoods have underground lines, rather than poles. PSE&G and Verizon, too, might have to be persuaded to permit access to poles. (Conroy Direct ¶¶ 45-52). In my view, these concerns were somewhat generally expressed, and I therefore do not give them great weight. Eisenstein, for his part, suggested that the town simply put up as many additional poles as necessary, a suggestion that did not bring the discussion into sharper focus. (Eisenstein Direct ¶48).

60, 70 sites and some of those might have to be on 70, 80-foot poles in order to get above the tree line and to give you decent coverage . . . [i]t just becomes impractical." (PX-33, 103:5-21, March 29, 2012 Transcript, Township of Harding Zoning Board of Adjustment). To the extent this was inconsistent with Dr. Eisenstein's opinion with respect to Paramus, that inconsistency was adequately explained by another factor: the installation in Harding involved coverage along a high-speed highway, Route 287, and a DAS system would involve rapid handoffs that might degrade the reliability of service. (Eisenstein Cross, 3T at 19-21).

64. In Essex Fells, New Jersey, Dr. Eisenstein testified that he "wouldn't necessarily feel comfortable mounting a heavy piece of equipment [on existing utility poles] without getting at least a structural engineer to examine them." (PX-8, 81:12-16, March 5, 2009 Transcript, Borough of Essex Fells Planning Board; *see also* Eisenstein Cross, 2T at 105-08). Challenged as to his contrary view regarding Paramus, Dr. Eisenstein allowed that a structural engineer would have to do the necessary analysis. (Eisenstein Cross, 2T at 105-08).

65. Dr. Eisenstein favorably evaluated the feasibility of a DAS system for the Gladwyne section in the Township of Lower Merion, Pennsylvania. (Eisenstein Direct ¶ 24). He testified that he interviewed three DAS providers who each presented proposals to address the coverage gap in Gladwyne. The parties had done some preliminary work for the proposals, including assessing the availability of utility poles and other structures for DAS nodes. (*Id.* ¶ 24).

Based on those proposals, Eisenstein reported to the Township's Board that the DAS system was feasible. He testified that the Township implemented the system from one of the providers with positive results, and extended it to a larger area in Lower Merion than originally intended. (Eisenstein Redirect, 3T at 44-45). This testimony has limited value as to the feasibility of a DAS system in Paramus. Eisenstein's involvement with the Lower Merion project ceased after he gave his report; he did not participate in selecting a proposal or deciding to extend the network. (*Id.*; Eisenstein Recross, 3T at 75-76). Furthermore, Eisenstein gave a general opinion in this case, without the benefit of concrete proposals from DAS providers, who largely declined to participate. (*Id.* at 45-46; *infra* at ¶¶ 68-69).

66. Discovery revealed that a DAS system in Newtown Square provides coverage that is designed to supplement the existing T-Mobile macro site located in the immediate vicinity of the corporate headquarters of SAP, America, Inc., and is primarily intended to ensure that commuters have coverage traveling on State Highway 252, Goshen Road, and certain feeder routes to these main thoroughfares located to the north and east of the intersection of these two roads. The coverage that the Newtown Square DAS provides is largely confined to these commuter routes. The DAS was not intended to provide, and does not in fact provide, coverage to the residential area lying between Goshen Road to the south and State Highway 252 to the north (for example). (Plaintiffs' Answer to Interrogatory 4). Thus it is of limited use as a comparison.

67. Dr. Eisenstein conceded that the Carriers, like himself, had conducted a “good faith analysis of whether or not DAS would be an alternative in Paramus.” (Eisenstein Recross, 3T at 67). His own analysis, Eisenstein acknowledged, was not, nor was it intended to be, “a design for a wireless network that could be built according to your specification of your design.” (Eisenstein Cross, 2T at 82). It was more of a conceptual opinion as to feasibility, which, in his view, necessarily incorporates the concept of reliability. (*Id.* at 85-87). Reliability, however, is a complex concept; it cannot be assessed in the abstract, but only in relation to a particular situation and design. (*Id.* at 88-89). Eisenstein’s opinion, then, was a more general and preliminary one, *i.e.*, that he believed a comparably reliable DAS system *could* be designed. (*Id.* at 89).

68. Dr. Eisenstein testified that he did not ascertain whether any DAS provider would or could design such a system. He reported that none of the DAS providers he contacted was willing to risk “backlash” from the Plaintiffs. (Eisenstein Direct ¶ 57; *see also* Eisenstein Redirect, 3T at 46-47). To my mind, this somewhat weakened the basis for concluding that DAS was a feasible alternative.

69. At the hearing, the Defendant belatedly proffered DX-16, a letter from Crown Castle, one of the DAS contractors Dr. Eisenstein had contacted earlier. Although it was not previously part of the record, and was not considered by the experts in their reports, I permitted examination. I consider this letter to be a preliminary solicitation or proposal to install a DAS system,

with battery backup and other features. It was not detailed, it did not propose a particular design, it fell far short of a firm proposal or commitment, and it was not accompanied by any expression of interest from a carrier. Assuming it was admitted in evidence, it would not affect my conclusions.

70. In sum, I find Mr. Conroy's opinion the more persuasive, and I further find that Dr. Eisenstein did not refute Mr. Conroy's account of the practical problems with a DAS. While Dr. Eisenstein showed that it is theoretically possible to provide coverage in the service gap area with a DAS, he did not establish that a DAS is an acceptable alternative means of providing the same level of robust, reliable coverage as a monopole under the prevailing conditions in Paramus.

b. Visual Impact and Intrusiveness

71. Mr. Karlebach, a licensed professional planner, presented his professional opinion that a single stealth tree-pole will be less intrusive and will have less visual impact than placing DAS equipment on utility poles. Defendant submitted Karlebach to a relatively brief cross-examination, but did not present its own witness on these issues.

72. Karlebach described a *faux* tree design for the monopole facility. According to Karlebach, such a design attempts, insofar as is practical, to integrate with its environs, to conceal antennas, mounting hardware, cables, and conduits, and to occupy only a small sector of the field of vision in the service gap area. (Karlebach Direct ¶¶ 25-26). While no one would mistake the pole for an actual tree, it at least has the virtue of being confined to a single

location.

73. A DAS, on the other hand, would not rise high above the ground, but would create its visual impact at multiple other locations dispersed throughout the service gap area. (Karlebach Direct ¶ 33). I add that, in each case, the DAS node would be located on a pole very near a private home.

74. The DAS network will require the placement of numerous cellular facilities throughout the gap to approximate the coverage from one macro facility. I accept Mr. Karlebach's expert opinion that the proposed macro facility would therefore better satisfy Section 429-205(A) of the Paramus Zoning Ordinance, which states that one of the purposes of the Ordinance is to "[m]inimize the total number of cellular facilities throughout the Borough of Paramus." (Karlebach Direct ¶ 38).

75. Mr. Karlebach also gave his expert opinion that the macro facility will better satisfy the purposes stated in Sections 429-205(A) and 429-212 of the Paramus Zoning Ordinance which "[s]trongly encourage the collocation" of carriers on wireless facilities" and provides that "[a]ll antennas and mounting equipment installed on buildings within the Borough of Paramus shall be designed to have the least visual impact from all street rights-of-way and adjacent properties." (Karlebach Direct ¶¶ 39-40).

76. Judge Linares has previously ruled that the Board's generalized concerns regarding aesthetics and planning were not supported by substantial evidence. (Linares Opinion at pp. 23-27). The Board presented no substantial additional evidence on these questions at trial. On this basis alone, I would

adhere to that earlier ruling.

77. Nevertheless, while determined to tread lightly in matters of aesthetic taste, I have reviewed the demonstrative exhibits depicting the proposed monopole. (E.g., 2T at 56-67 and Exs. A1 and A2.) Its proposed location, while in a residential zone and visible from a relatively larger number of residences, is physically close to only a limited number of residences. The DAS network would require additional boxes on utility poles near residents' homes. While I do not find that the incremental intrusion would necessarily be severe, it does have the capacity to impact individual homeowners' views and local streetscapes. In short, I do not identify a clear aesthetic winner.

78. I find that either alternative, the monopole system or the DAS system, would not unduly intrude on the aesthetic or planning values embodied in the Paramus Zoning Ordinance. From a planning point of view, the monopole may have the edge in that it meets the criteria of collocation and minimizing the number of facilities. At any rate, I certainly cannot conclude that a DAS would be superior from an aesthetic and planning point of view.

## **II. CONCLUSIONS OF LAW**

79. The Board's zoning denial constitutes an effective prohibition of wireless service, in violation of 47 U.S.C. § 332(c)(7)(B)(i)(II). On this claim, prior proceedings left open one remaining factual question—"whether Plaintiffs adequately considered technological alternatives to the monopole, *i.e.* the feasibility of a DAS as a less intrusive alternative." (Salas Opinion at 4).<sup>6</sup>

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<sup>6</sup> All other aspects of the effective prohibition claim were decided in the Carriers'

80. The question before the Court requires consideration of whether a DAS is a comparable alternative to the proposed facility. That, in turn, implicates the service provided, the aesthetic effect, and its availability for immediate implementation. (Linares Opinion at 21-22, 27).

81. A DAS is not a feasible alternative because it will not offer comparable wireless service when measured against the coverage that can be provided by the proposed macro facility. A DAS has significant reliability concerns associated with its deployment on utility poles, its small coverage areas per node, and its vulnerability to disruption.

82. The Carriers do not bear the burden of proving that every potential alternative, no matter how speculative, is unavailable. The proper inquiry for an effective prohibition claim is whether "*a good faith effort* has been made to identify and evaluate less intrusive alternatives, e.g., that the provider has considered less sensitive sites, alternative system designs, alternative tower designs, placement of antennae on existing structures, etc." *APT Pittsburgh Ltd. P'ship v. Penn Twp.*, 196 F.3d 469, 480 (3d Cir. 1999) (emphasis added). That good faith analysis is apparent from the face of the record before the Board. Indeed, Dr. Eisenstein conceded in a slightly different context that a good faith

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favor in Judge Linares's November 22, 2010 decision. He held that the Carriers (1) have significant gaps in their coverage and (2) exhaustively searched in vain for a less intrusive site. See Linares Opinion at 3-5, 13-20. In fact, the Carriers evaluated 27 alternate sites, including every site in the permitted MU zone. *Id.* at 5; PX-24 (10/11/2007 Tr.) at 25-27. They looked for collocation opportunities and considered whether they could serve the gap through a combination of lower-height facilities. PX-23 (12/7/2006 Tr.) at 12-13; PX-22 (9/14/2006 Tr.) at 8-13; PX-21 (5/11/2006 Tr.) at 52. In the end, even the Board's expert Ross Scorci agreed that there was no "viable alternative" to a facility at one of the proposed sites. Linares Opinion at 5. The sole question now, therefore, relates to the Carrier's evaluation of DAS as an alternative. *Id.* at 22.

analysis is just what the Carriers have provided. (See Eisenstein Recross, 3T at 67).<sup>7</sup>

83. Therefore, judgment will be entered in the Carriers' favor on this issue. The Board's denial constitutes an effective prohibition of wireless service, in violation of 47 U.S.C. § 332(c)(7)(B)(i)(II).<sup>8</sup>

84. Section 332(c)(7)(B)(iii) requires that the decision of the Zoning Board be "in writing and supported by substantial evidence contained in a

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<sup>7</sup> Were I writing on a clean slate, I might rest this conclusion of law on the alternative ground that, because DAS is an alternative technology, as opposed to, say, an alternative site, any requirement for its implementation would likely be "preempted because [it] interfere[s] with the federal government's regulation of technical and operational aspects of wireless telecommunications technology, a field that is occupied by federal law." *N.Y. SMSA Ltd. P'ship v. Clarkstown*, 612 F.3d 97, 105 (2d Cir. 2010). This approach implies that a DAS would not constitute a legally "available" alternative under Section 332 because it is not a solution that the Board could require the Carriers to adopt. A DAS is a technological approach to the provision of wireless service, not a matter within the Board's competence to decide "zoning and land use matters." *Id.* at 106-07. The expert testimony and reports here only confirm that there is a fundamental distinction between weighing competing technologies and deciding land use questions. Because the Board was presented with two sites, and the only alternative offered was not a site, but a technology, the Board's denial of a variance may in practical terms have mandated that the Carriers use DAS to fill the coverage gap. That, in my view, may exceed the proper function of a zoning board, and interfere with the implementation of federal law.

The preemption approach, however, was rejected by Judge Linares, who found that the Board's decision was not tantamount to mandating any particular technology. That decision remains the law of the case, to which I will adhere. See Linares Opinion at 21.

<sup>8</sup> As noted above, Judge Salas has already ruled on the Board's claim that granting the variance sought by Plaintiffs would be impermissible "arrogation" of the legislature's power. Judge Salas held that the Board could not advance "arrogation" as a defense because the Board did not rely on "arrogation as a reason for its denial of the variance applications," and thus had waived the argument. The Board has not presented a valid justification for reconsidering that ruling. Even if I were to consider the Board's arrogation defense on the merits, however, it would make no difference. There is no basis for reading the Borough's zoning ordinance as precluding the requested variance. And such a ban, if it existed, would plainly constitute an impermissible prohibition of wireless service under the TCA.

written record." 47 U.S.C. ¶ 332(c)(7)(B)(iii). Substantial evidence means "such evidence as a reasonable mind might accept as adequate to support a conclusion." *Cellular Telephone Co. v. Zoning Bd. of Adjustment of the Borough of Ho-Ho-Kus*, 197 F.3d 64, 71 (3d Cir. 1999). The Court must examine the record as a whole to determine if there is substantial evidence to support the challenged decision. *Id.* The Court may not weigh the evidence contained in the record or substitute its own conclusions for those of the Board. I consider the record created before the Board, summarized above at ¶¶ 6-27.

85. Under New Jersey Law, a decision of a zoning board may be set aside only when it is "arbitrary, capricious, or unreasonable," but "[s]o long as the power exists to do the act complained of and there is substantial evidence to support it, the judicial branch of the government cannot interfere." *Medici v. BPR Co.*, 526 A.2d 109, 116 (N.J. 1987). Thus, both the TCA and New Jersey law employ the substantial evidence standard. *Cellular Telephone Co. v. Zoning Bd. of Adjustment of the Borough of Harrington Park*, 90 F. Supp. 2d 557, 563 n.5 (D.N.J. 2000).

86. Previous summary judgment rulings in this case have narrowed the inquiry such that "the question of whether the Board's denial of Plaintiffs' application was supported by substantial evidence turns on the resolution of genuine issues of material fact regarding the feasibility of the DAS as an alternative to the proposed monopoly." (Linares Opinion at 28).

87. I have examined the record of the Board's proceedings, summarized above at ¶¶ 6-27. Although for this limited purpose I confine

myself to the administrative record, I have implemented the earlier ruling of Judge Linares—*i.e.*, I have considered the adequacy of that record in light of what I have learned from the expert testimony here about the nature of monopole and DAS networks. That expert testimony in this Court has educated me as to the technical issues, and in that way has influenced my conclusions as to the meaning of the evidence that the Board heard, as well as my conclusions as to what the presentation may have lacked.

88. I conclude that the Board's conclusion was not supported by substantial evidence. That conclusion of law, although reached on a somewhat different basis, is consonant with the conclusion reached above that a DAS is not a feasible alternative to the proposed monopole. And it necessitates judgment for the Carriers on substantial evidence review, and on the state law claims.

### **CONCLUSION**

Based upon the findings of fact and conclusions of law set forth above, as well as prior decisions of the Court, this Court finds that the Board's denial of Plaintiffs' application to construct a wireless facility constitutes an effective prohibition of wireless service in violation of the federal TCA and is not supported by substantial evidence under the TCA and New Jersey's MLUL.

Dated: May 12, 2014

  
**Hon. Kevin McNulty**  
**United States District Judge**